# Bluetooth®

# Wireless User Guide

## For Zebra® Bluetooth-Enabled Printers

ZEBRA TECHNOLOGIES

P1068791-002

**© 2015 ZIH Corp.** The copyrights in this manual and the software and/or firmware in the label printer described therein are owned by ZIH Corp. Unauthorized reproduction of this manual or the software and/or firmware in the label printer may result in imprisonment of up to one year and fines of up to $10,000 (17 U.S.C.506). Copyright violators may be subject to civil liability.

This product may contain ZPL®, ZPL II®, and ZebraLink™ programs; Element Energy Equalizer® Circuit; E$^{3}$®; and Monotype Imaging fonts. Software © ZIH Corp. All rights reserved worldwide.

ZebraLink and all product names and numbers are trademarks, and Zebra, the Zebra logo, ZPL, ZPL II, Element Energy Equalizer Circuit, and E$^{3}$ Circuit are registered trademarks of ZIH Corp. All rights reserved worldwide.

Bluetooth® is a registered trademark of Bluetooth SIG, Inc.

All other brand names, product names, or trademarks belong to their respective holders. For additional trademark information, please see “Trademarks” on the product CD.

**Proprietary Statement** This manual contains proprietary information of Zebra Technologies Corporation and its subsidiaries (“Zebra Technologies”). It is intended solely for the information and use of parties operating and maintaining the equipment described herein. Such proprietary information may not be used, reproduced, or disclosed to any other parties for any other purpose without the express, written permission of Zebra Technologies Corporation.

**Product Improvements** Continuous improvement of products is a policy of Zebra Technologies Corporation. All specifications and designs are subject to change without notice.

**Liability Disclaimer** Zebra Technologies Corporation takes steps to ensure that its published Engineering specifications and manuals are correct; however, errors do occur. Zebra Technologies Corporation reserves the right to correct any such errors and disclaims liability resulting therefrom.

**Radio Approvals** Zebra Wireless WLAN printers are only approved for use in certain countries. In no event shall Zebra be liable for uses of Zebra Wireless WLAN printers that are contrary to local law. To determine whether you are allowed to use your Zebra Wireless WLAN printer in a specific country, check to see if the radio type number that is printed on the identification label of your device is listed on the radio approval list posted on the Zebra support site at http://support.zebra.com.

**Limitation of Liability** In no event shall Zebra Technologies Corporation or anyone else involved in the creation, production, or delivery of the accompanying product (including hardware and software) be liable for any damages whatsoever (including, without limitation, consequential damages including loss of business profits, business interruption, or loss of business information) arising out of the use of, the results of use of, or inability to use such product, even if Zebra Technologies Corporation has been advised of the possibility of such damages. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

**Part Number: P1068791-002**

# Contents


**Overview . . . . . 5**

Bluetooth® Enabled Printers . . . . . .6
Bluetooth FAQ's . . . . . .8
What is Bluetooth? . . . . . .8
With what specification does the Zebra Bluetooth radio comply? . . . . . .8
What is Bluetooth® used for? . . . . . .8
Is Bluetooth technology hardware or software? . . . . . .8
What devices can communicate with Zebra's Bluetooth printers? . . . . . .8
What information can be transmitted via Bluetooth to Zebra mobile printers? .9
What is a master device and what is a slave device? . . . . . .10
What is Link-OS™? . . . . . .10
What type of security does Bluetooth support? . . . . . .10

**Connectivity . . . . . 11**

Configuring The Printer . . . . . .12
Printer Network Configuration Label . . . . . .12
Changing Bluetooth Settings On Your Printer . . . . . .14
Installing Zebra Setup Utilities . . . . . .14
Connecting the Printer to a Windows 7 PC . . . . . .18
Connecting the Printer to a Windows 8 PC . . . . . .24
Connecting Mobile Devices . . . . . .26
Connecting an Apple iOS device . . . . . .26
Downloading Zebra Utilities from the App Store . . . . . .28

**Security . . . . . 31**

Minimum Security Mode . . . . . .32
Secure Simple Pairing . . . . . .33
Man-In-The-Middle Protection . . . . . .33

**Troubleshooting . . . . . 35**

Troubleshooting Steps . . . . . .36
If your Bluetooth device is not detected when you add the device: . . . . . .36

**Notes •** _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

# Overview

Use this chapter to familiarize yourself with Bluetooth® technology and the various Zebra® printers that are Bluetooth enabled.

## Contents


Bluetooth Enabled Printers . . . . . 6
Bluetooth FAQ's . . . . . 8
What is Bluetooth? . . . . . 8
What is Bluetooth used for? . . . . . 8
With what specification does the Zebra Bluetooth radio comply? . . . . . 8
Is Bluetooth technology hardware or software? . . . . . 8
What devices can communicate with Zebra's Bluetooth printers? . . . . . 8
What information can be transmitted via Bluetooth to Zebra mobile printers? . . . . . 9
What is a master device and what is a slave device? . . . . . 10
What is Link-OS™? . . . . . 10
What type of security does Bluetooth support? . . . . . 10

# Bluetooth Enabled Printers

**Table 1 • Bluetooth Enabled Mobile Printers**

| | Model | LCD | Wireless Options | Capabilities | Apple iOS Support |
|---|---|---|---|---|---|
| | EM220II™ | ✖ | • BT 3.0 + EDR (Standard)<br>• 802.11b/g (optional) | • 1.89-inch print width<br>• 203 dpi/8 dpm | ✔ |
| | iMZ220™ | ✖ | • BT 2.1<br>• Dual Radio (BT 3.0 + 802.11 a/b/g/n (optional) | • 1.89-inch print width<br>• Link-OS™ | ✔ |
| | iMZ320™ | ✖ | • BT 2.1 (standard)<br>• Dual Radio (BT 3.0 + 802.11 a/b/g/n (optional) | • 2.89-inch print width<br>• Link-OS™ | ✔ |
| | P4T™/<br>RP4T™ | ✔ | • BT 2.0 (standard)<br>• 802.11b/g (optional) | • 4.09-inch print width<br>• 203 dpi/8 dpm | ✔ |
| | QLn220™ | ✔ | • BT 2.1 (standard)<br>• Dual Radio (BT 3.0 + 802.11 a/b/g/n) (optional | • Supports 1.9-inch width<br>• Link-OS™ | ✔ |
| | QLn320™ | ✔ | • BT 2.1<br>• Dual Radio (BT 3.0 + 802.11 a/b/g/n) | • Supports 2.89- inch print width<br>• Link-OS™ | ✔ |
| | QLn420™ | ✔ | • BT 2.1 (optional)<br>• Dual Radio (BT 3.0 + 802.11 a/b/g/n) | • Supports 3.89-inch print width<br>• Link-OS™ | ✔ |
| | ZQ110™ | ✔ | • BT 3.0 (Standard)<br>• 802.11b/g (optional) | • Supports 2.28-inch width | ✔ |
| | ZQ510™ | ✔ | • BT 4.0/LE ra BT 3.0<br>• Dual Radio (BT 3.0 + 802.11 a/b/g/n) | • Supports 2.83- inch print width<br>• Link-OS™ | ✔ |
| | ZQ520™ | ✔ | • BT 4.0/LE + BT 3.0<br>• Dual Radio (BT 3.0 + 802.11 a/b/g/n | • Supports 4.09-inch print width<br>• Link-OS™ | ✔ |

**Table 2 • Bluetooth Enabled Desktop / Tabletop Printers**

| | Model | LCD | Wireless Options | Capabilities | Apple iOS Support |
|---|---|---|---|---|---|
| | GX420t | ✔ | • BT 2.0 (standard)<br>• BT 2.1 (optional)<br>• 802.11 a/b/g/n (optional) | • Supports 3.89-inch print width<br>• XML enabled printing | ✖ |
| | GX430t | ✔ | • BT2.0 (standard)<br>• BT 2.1 (optional)<br>• 802.11 a/b/g/n (optional) | • Supports 3.89-inch print width<br>• XML enabled printing<br>• | ✖ |
| | GX420d | ✔ | • BT 2.0 Standard)<br>• BT 2.1 (optional)<br>• 802.11 a/b/g/n (optional) | • Supports 3.89-inch print width<br>• XML enabled printing<br>• | ✖ |
| | ZD500™ Series | ✔ | • BT 2.0 Standard<br>• Dual Radio (BT 3.0 + 802.11 a/b/g/n) (optional)<br>• | • XML enabled printing<br>• Link-OS™ | ✖ |
| | ZD500R™ Series | ✔ | • BT 200 (standard)<br>• Dual Radio (BT 3.0 + 802.11 a/b/g/n) (optional) | • XML enabled printing<br>• RFID module<br>• Link-OS™ | ✖ |
| | ZT400™ Series | ✔ | • BT 2.1+EDR (standard)<br>• 802.11 a/b/g/n (optional) | • Wired Ethernet (Built-in)<br>• 4” & 6” print widths<br>• Link-OS™ | ✔ |

Made for iPod iPhone iPad

**Note** • QLn printers with SKUs QNx-xxNxxMxx-xx and QNx-xxCxxMxx-xx support MFi.

**Note** • **Apple iOS support** and **Made for iPod, iPhone, iPad** means that an electronic accessory has been designed to connect specifically to iPod, iPhone, or iPad, respectively, and is certified by the developer to meet Apple performance standards. Apple is not responsible for the operation of this device or its compliance with safety and regulatory standards. Please note that the use of this accessory with iOS devices may affect wireless performance.

**Note** • **Android** is a trademark of Google Inc. The Android robot is reproduced or modified from work created and shared by Google and used according to terms described in the Creative Commons 3.0 Attribution License.

# Bluetooth FAQ's

## What is Bluetooth?

Bluetooth technology is the global wireless standard for enabling low energy, small range, secure connectivity for Bluetooth-enabled devices without the use of cables or wires. Bluetooth devices send and receive data over short distances using radio transmissions.

## What is Bluetooth used for?

Bluetooth capability is built into electronic devices and adapters. Bluetooth is a direct device-to-device connection which allows the user to wirelessly share data and other information between paired devices. A Bluetooth radio is designed to replace cables by taking the information normally carried by the cable and transmitting it over a radio frequency to a receiving Bluetooth radio device.

## With what specification does the Zebra Bluetooth radio comply?

Bluetooth technology operates in the unlicensed industrial, scientific, and medical (ISM) band using spread spectrum, frequency hopping, full-duplex signal at a nominal rate of 1600 hops/sec. The 2.4 GHz ISM band is available and unlicensed in most countries. The Bluetooth radio inside Zebra printers complies with BT 2.0 Specification or BT Specification 2.1 (B-radio) or the BT Specification 3.0 (C-radio, or Dual Radio) or BT specification 4.0 and supports the SPP (Serial Port Profile). All print jobs sent to the printer will be done through the ZPS (Zebra Parser Service), which is basically a BT emulation of an RS-232 serial communication.

## Is Bluetooth technology hardware or software?

It's a combination of both. In products that contain Bluetooth, a small computer chip containing the Bluetooth radio is installed in the product. But it also needs software to connect to other products.

## What devices can communicate with Zebra's Bluetooth printers?

Any computer or hand-held device that has a Bluetooth radio inside and supports the SPP (Serial Port Profile) of the Bluetooth specification can communicate with Zebra Bluetooth printers.

# What information can be transmitted via Bluetooth to Zebra mobile printers?

All data that can be transmitted over a serial cable can be sent over Bluetooth. The practical and intended uses are data that has been formatted for printing of receipts, labels, and bar codes. Zebra provides a label creation utility called ZebraDesigner™ to facilitate the formatting of labels or text. For more information about ZebraDesigner, visit www.zebra.com/software.

A programming guide and a wireless configuration guide are also available. To view the Zebra Programming Guide, visit www.zebra.com/support.

## Independent Software Vendors

Zebra partners with Independent Software Vendors (ISVs) to develop software and mobile applications for use with Zebra printers.The Zebra ISV program is designed to provide ISVs with access to the sale, marketing, and technical support that they will need to develop, integrate, and promote solutions in new markets around the globe. You can download a sample mobile application called Zebra Utilities from the App Store on an iOS® service or from the Google Play store on an Android™ device. See *Connecting Mobile Devices* on page 27 for instructions on setting up Zebra Utilities on your mobile device.

**Figure 1 • Zebra Utilities on Apple iPhone**

To become a Zebra ISV Partner, please visit http://www.zebra.com/us/en/partners/become-a-partner.html.

To find an ISV Partner please visit http://www.zebra.com/findisv.html.

## What is a master device and what is a slave device?

The master device refers to the device that initiates the connection with other Bluetooth devices. The slave device refers to the Bluetooth device that listens for and received the connection information from the master device. Link-OS® enabled printers now support role-switching, allowing iOS® master devices to automatically reconnect.

## What is Link-OS™?

Link-OS™ was developed by Zebra Technologies to be a core set of applications that are supported across a wide range of smart phones, tablets, and other computer systems to help customers manage printers, connect devices and applications, in a building or across the globe. To learn more about Link-OS, visit www.zebra.com/linkos.

## What type of security does Bluetooth support?

The Bluetooth specification supports authentication and encryption. For the authentication algorithm, the size of the key used is always 128 bits. For the encryption algorithm, the key size may vary between 1 and 16 octets (8-128 bits).

View *Security* on page 31 section of this document for more information.

# Connectivity

## Contents


Configuring The Printer . . . . . 12
Printer Network Configuration Label . . . . . 12
Changing Bluetooth Settings On Your Printer . . . . . 15
Installing Zebra Setup Utilities . . . . . 15
Connecting the Printer to a Windows 7 PC . . . . . 19
Connecting the Printer to a Windows 8 PC . . . . . 25
Connecting Mobile Devices . . . . . 27

# Configuring The Printer

This guide assumes that you have installed the proper drivers (if necessary) on the master device and the device is Bluetooth compatible. A master device is any Bluetooth radio enabled device that can initiate a connection with a Bluetooth radio enabled printer. These instructions include connecting your Bluetooth printer to:

- desktop Windows PCs and mobile computers
- Apple iOS® devices (iPhone, iPad, iPod Touch)
- Android™ devices
- Windows mobile devices

## Printer Network Configuration Label

Verify that your Zebra printer has the Bluetooth radio installed. You can verify this by printing a network configuration label (see an example on page 14). Zebra printers with the Internal Bluetooth option installed print a configuration label with information needed to establish and troubleshoot printing from a network. Refer to your Zebra printer's user guide for instructions on how to print a configuration label.

The printer's Bluetooth settings help identify the printer for installation, print operations, and network connectivity.

1. Depending on the model of your printer, make sure the printer is plugged into a proper power source or the battery is installed. If your printer uses a battery as the power source, you may need to charge the battery before you can continue setting up your printer.
2. Load media into the printer. For more information regarding loading media into your printer, refer to your printer model's User Guide.
3. Turn on (**|**) the printer. Ensure Bluetooth Discovery is turned ON by referring to the network configuration label.

**Figure 2 • An example of a network configuration label (two-key)**

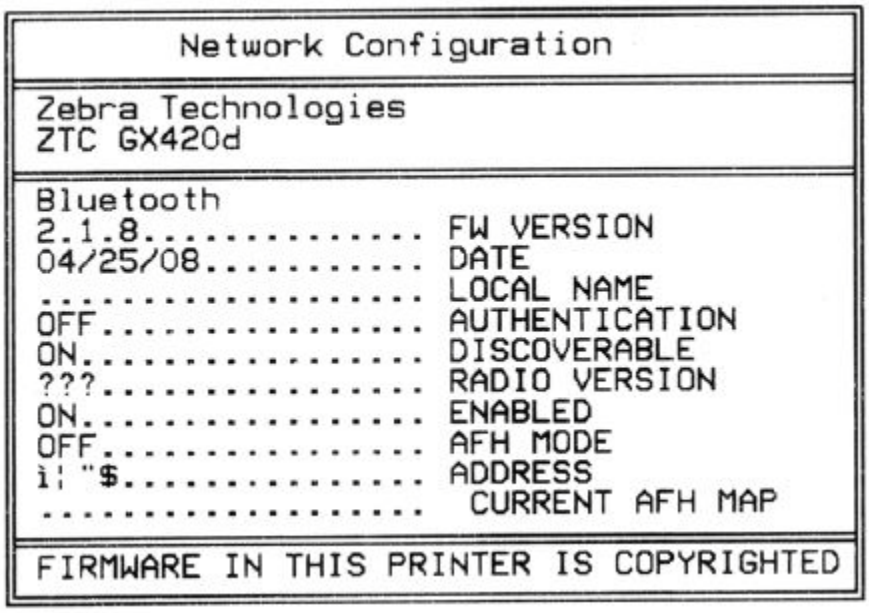
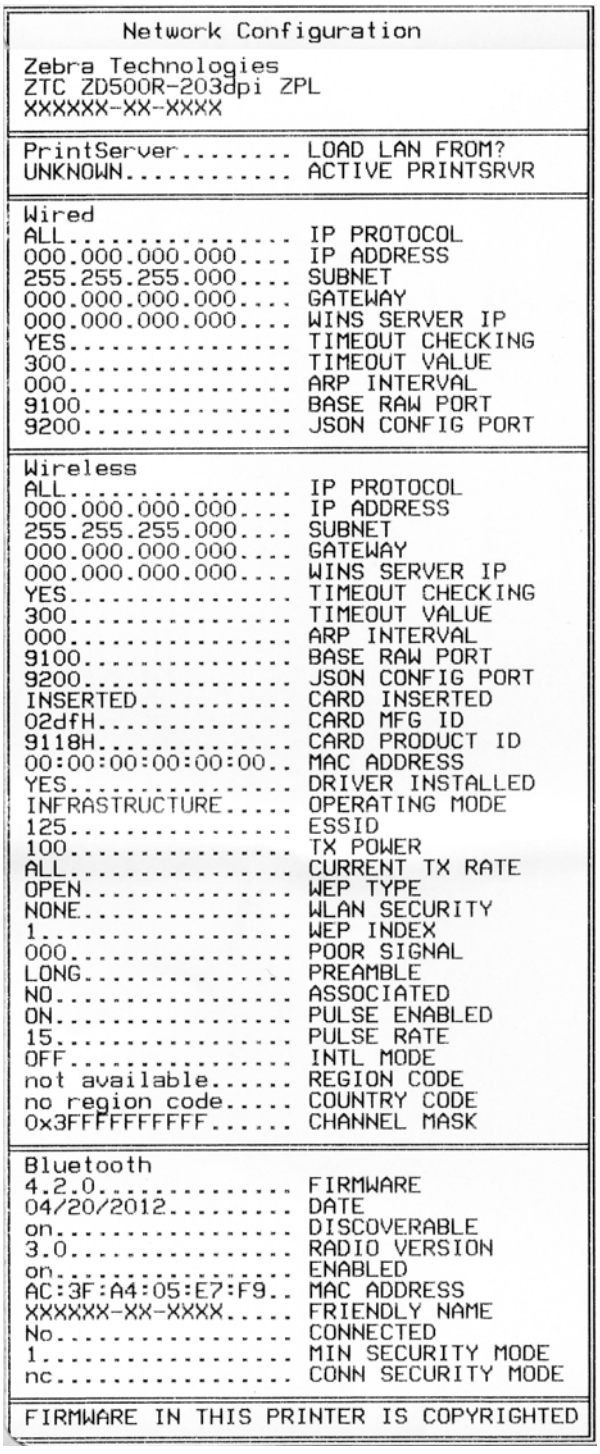


**Figure 2 • An example of a network configuration label (ZPL)**



# Changing Bluetooth Settings On Your Printer

**Note •** If your network configuration label indicates that Bluetooth Discovery is OFF, you will have to install the Zebra Setup Utilities as outlined in the Installing Zebra Setup Utilities section below or directly send printer programming commands to enable the Bluetooth option on your printer.

## Installing Zebra Setup Utilities

**Important •** The printer needs to be connected to a Windows PC through a USB cable or a standard serial port cable to change Bluetooth settings on your printer.

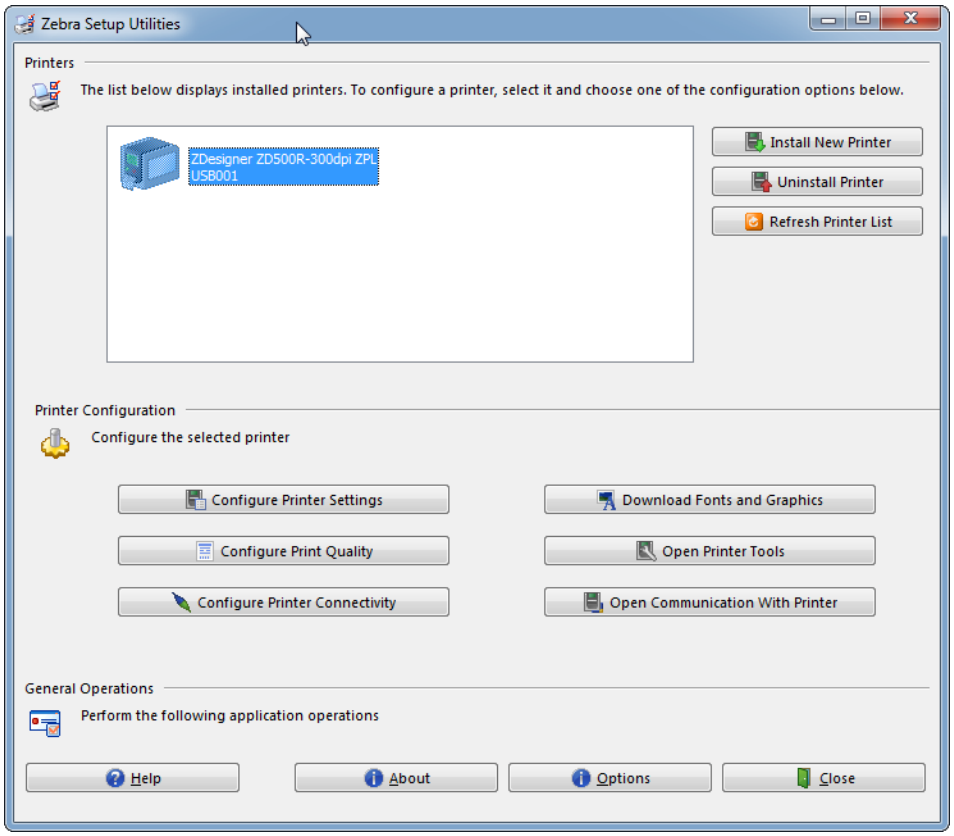
### Minimum System Requirements

- Windows XP SP2 (Service Pack 2)
- Windows 2003
- Windows 2008
- Windows Vista
- Windows 7
- Windows 8

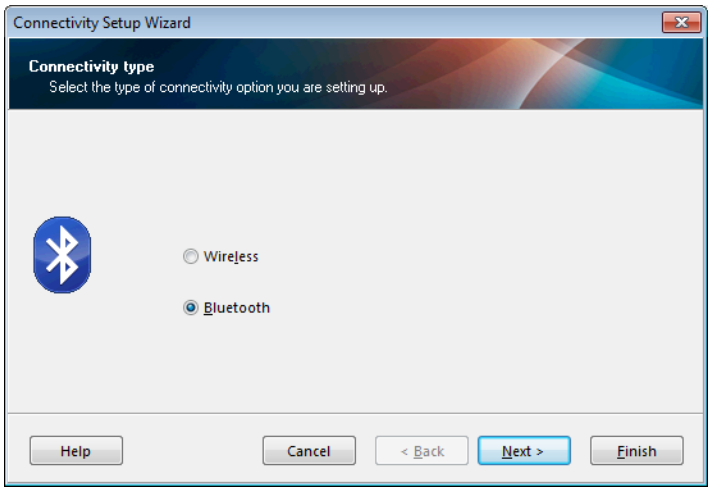
In the Windows environment, the printer requires the ZebraDesigner™ driver installed on the computer to allow printing after establishing a Bluetooth connection. Use the Zebra Setup Utilities configuration wizard to configure your Bluetooth settings.

1. Download and install Zebra Setup Utilities (ZSU) from your printer's User CD or visit www.zebra.com/setup/ to download the latest version. Double-click the .exe file and the wizard will guide you through the installation process.
2. Connect the printer to your PC using a USB cable.
3. Launch ZSU by going to the Start menu, and click **Zebra Technologies** > **Zebra Setup Utilities** > **Zebra Setup Utilities**.
4. Select the printer you want to configure for Bluetooth from the list of displayed printers.

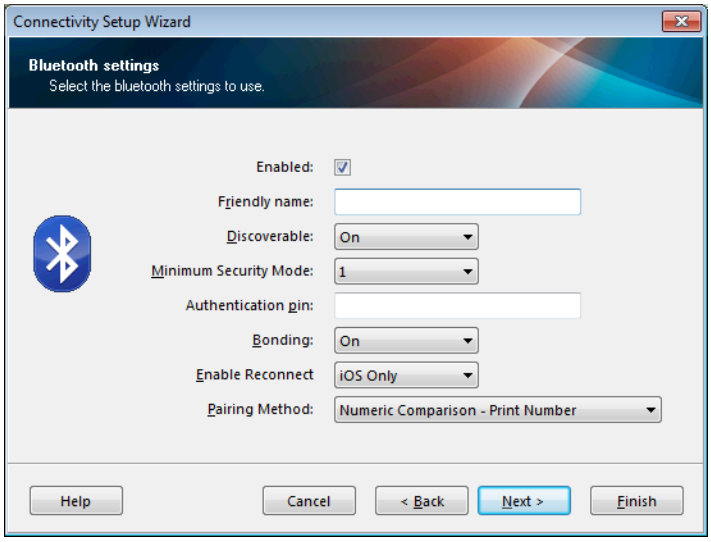
5. Click **Configure Printer Connectivity**.




6. On the **Connectivity Type** screen, select Bluetooth.



7. On the Bluetooth settings screen, click in the check box next to Enabled.




By default a Zebra Bluetooth printer comes with the following settings:

- **Friendly Name:** (Printer Serial Number)
- **Discoverable:** (If BT 2.1 and 4.0, Discoverable = ON. If BT 3.0 Dual Radio = OFF)

**Important •** By default, if your printer has the Bluetooth 2.1 (B-radio) specification installed, discovery is enabled. By default, if your printer has the Bluetooth 3.0 (C-radio or dual radio) installed, discovery is disabled.

- **Minimum Security Mode:** 1. See Table 3 on page 32 for further information.

  The **Friendly Name** is part of the printer local name (a combination of the printer model name and an alphanumeric string of characters). The alphanumeric string of characters is the **Friendly Name** of the device. This is the name provided by the printer during service discovery. The Friendly Name is a string of up to 20 characters long that is unique to each printer.

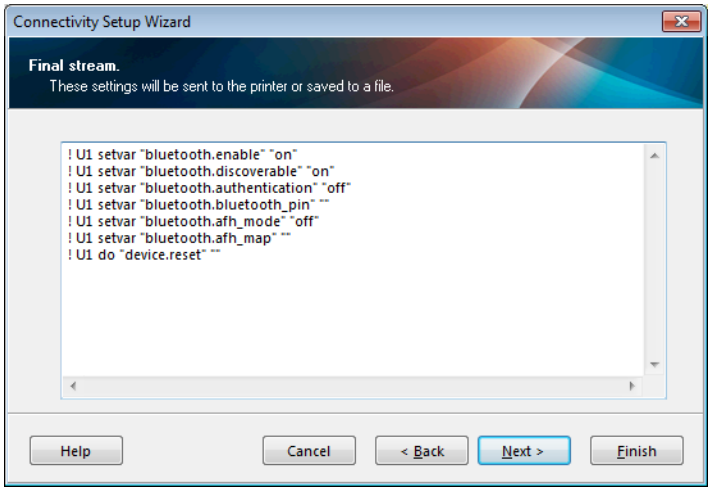
8. Next to **Discoverable**, if it is not already chosen, select **ON**.

   This option sets whether the device will appear in a Bluetooth inquiry on another device, typically, a master device.

9. Leave **Authentication PIN** blank. The **PIN** (bluetooth.bluetooth_pin) is necessary for pairing if the master device is BT2.0 or older.

10. On the **Final Stream** screen, click **Next** to send the Set-Get-Do (SGD) command settings to the printer or save them to a file.

    (For more information regarding SGD commands and other Zebra programming languages, go to zebra.com/manuals on-line to download the Zebra Programming Guide.)

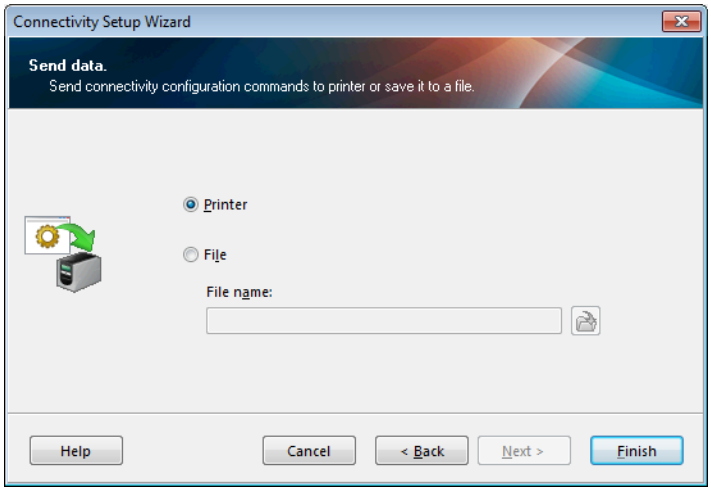

Connectivity Setup Wizard
Final stream.
These settings will be sent to the printer or saved to a file.
! U1 setvar "bluetooth.enable" "on"
! U1 setvar "bluetooth.discoverable" "on"
! U1 setvar "bluetooth.authentication" "off"
! U1 setvar "bluetooth.bluetooth_pin" ""
! U1 setvar "bluetooth.afh_mode" "off"
! U1 setvar "bluetooth.afh_map" ""
! U1 do "device.reset" ""
Help
Cancel
< Back
Next >
Finish

11. Perform one of the following:

- On the **Send Data** screen, select **Printer** to send your settings directly to the printer.

  OR

- Select **File** to save the settings in a file with a destination of your choice.



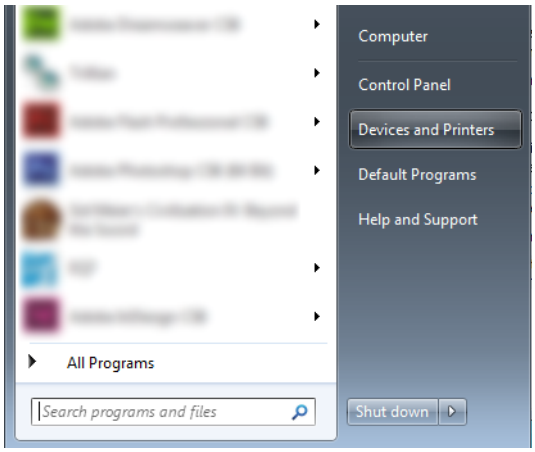

12. Click **Finish** to complete the Bluetooth configuration for your printer.

# Connecting the Printer to a Windows 7 PC

The printer must have the factory option Bluetooth installed and enabled. If the printer has an LCD screen, the printer's main menu screen will display Bluetooth connection status. If the printer does not have an LCD, the blue LED light will be solid blue to indicate a Bluetooth connection has been established.

**Important** • Turn your printer on so it can be discovered by Windows.

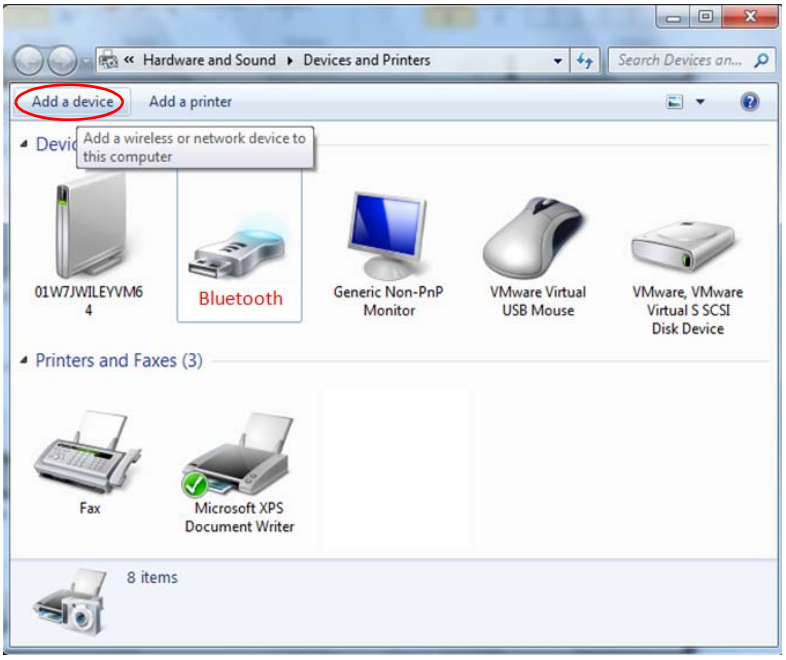
1. In Windows 7, select **Start** > **Devices and Printers.**



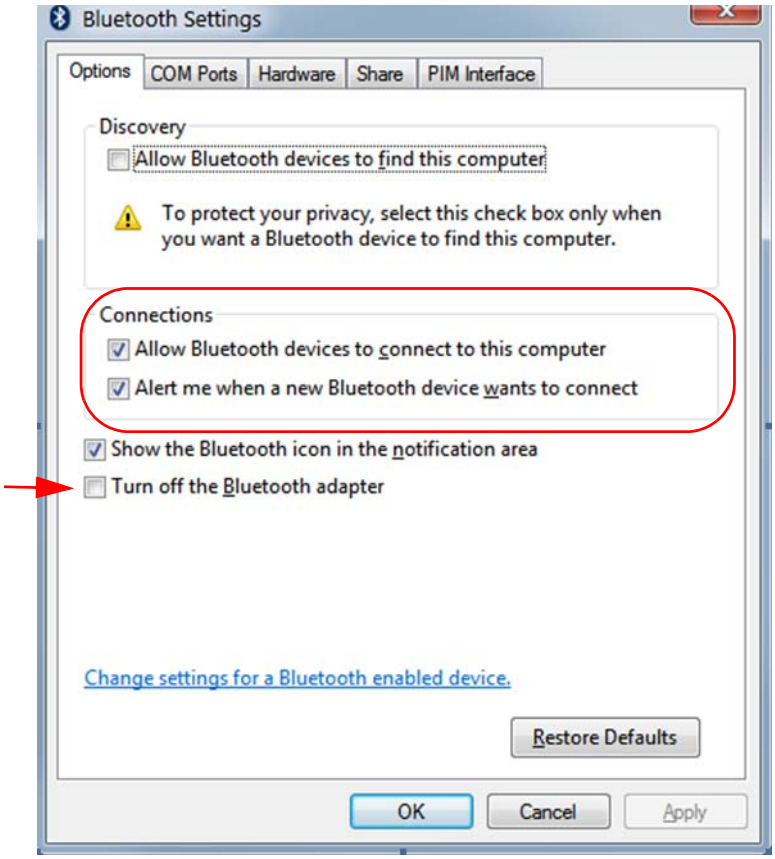
2. Do you have a USB adapter add-on?

| If you have a USB Bluetooth Adapter Add-on… | Then… |
|---|---|
| No | You already have Bluetooth enabled, so skip to step 5 on page 22. |
| Yes | Continue with step 3. |

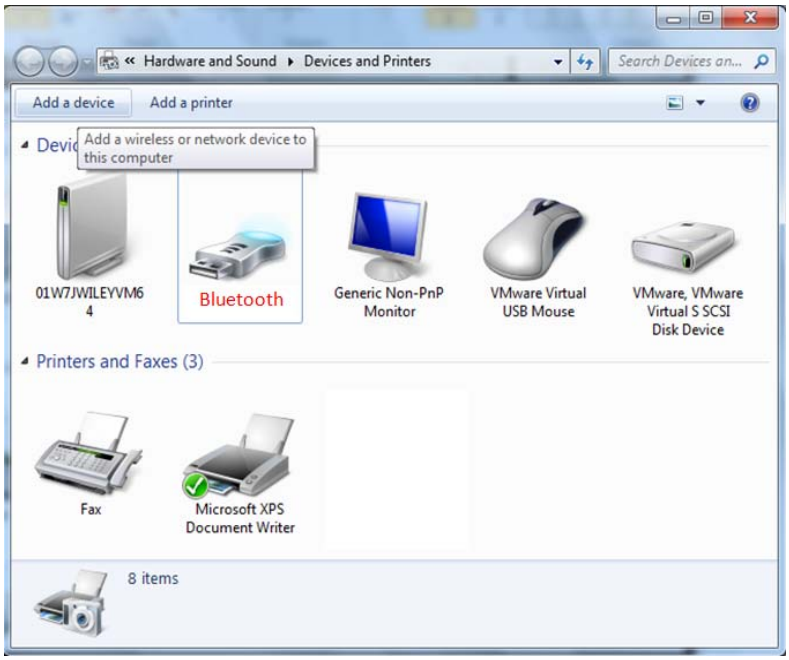
3. If your master device has a USB Bluetooth adapter add-on, confirm that the screen looks similar to the one below.



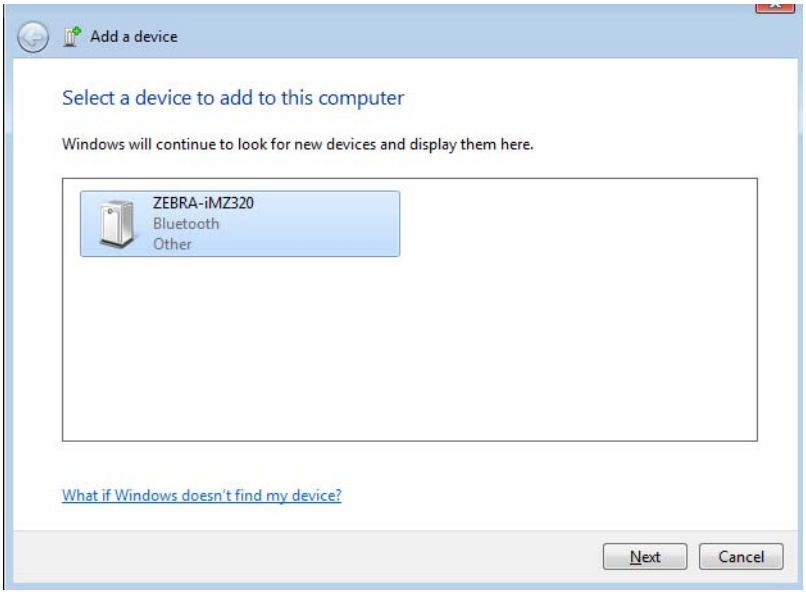
4. Perform the following steps to enable Bluetooth connectivity in Windows:
   - **a.** Right-click on the Bluetooth icon.
   - **b.** Select Bluetooth Settings from the pop-up menu.
   - **c.** Verify that both Connections check boxes are checked.
   - **d.** Verify that the Turn off the Bluetooth Adapter option is not checked.
   - **e.** Click Apply and then, click OK to close the window.


Bluetooth Settings
Options
COM Ports
Hardware
Share
PIM Interface
Discovery
Allow Bluetooth devices to find this computer
To protect your privacy, select this check box only when you want a Bluetooth device to find this computer.
Connections
Allow Bluetooth devices to connect to this computer
Alert me when a new Bluetooth device wants to connect
Show the Bluetooth icon in the notification area
Turn off the Bluetooth adapter
Change settings for a Bluetooth enabled device.
Restore Defaults
OK
Cancel
Apply

5. On the **Devices and Printers** windows, click **Add a device**. Add a device window will populate with Bluetooth devices near you and have been configured to allow service discovery.




6. In the Add a device window, click on the Zebra printer, and then click **Next.**



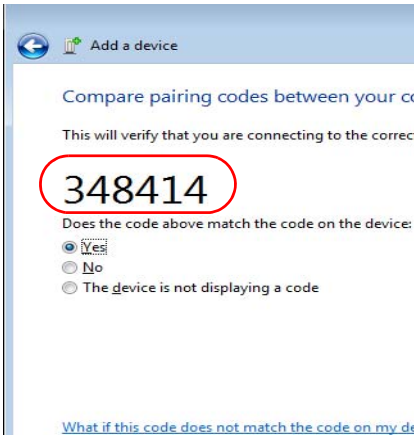
7. Start with the Windows Display and select the column that matches your printer (either with or without a display).

8. Verify that the pairing codes match.

**Important •** Windows will display the pairing code for only 10 seconds, so complete this step quickly!

## Windows Display

- Windows displays a random pairing code in the Add a Device window.
- In the ZQ500, if the code matches select yes.

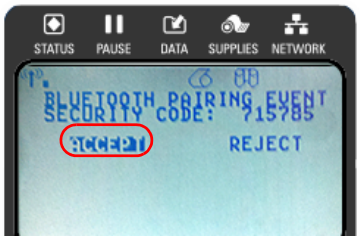

Add a device
Compare pairing codes between your c
This will verify that you are connecting to the correc
348414
Does the code above match the code on the device:
Yes
No
The device is not displaying a code
What if this code does not match the code on my d

The above behavior is if the Windows PC has a BT2.1 or newer radio.

If the printer or Windows PC has a BT2.0 radio or older, you will be asked to enter a PIN (bluetooth.bluetooth_pin).

## Printer Display

- Use the printer's control panel arrow buttons to change the highlighted **ACCEPT** or **REJECT** options and then press **OK** on the printer's control panel.
- The printer displays "Pairing successful".




## Printer Without a Display

- If your printer does not have a display screen, the printer will print the pairing code on the loaded media like the example below.
- If the pairing code numbers match, select **YES** on the **Add a Device** window (in Windows) and click **Next**.

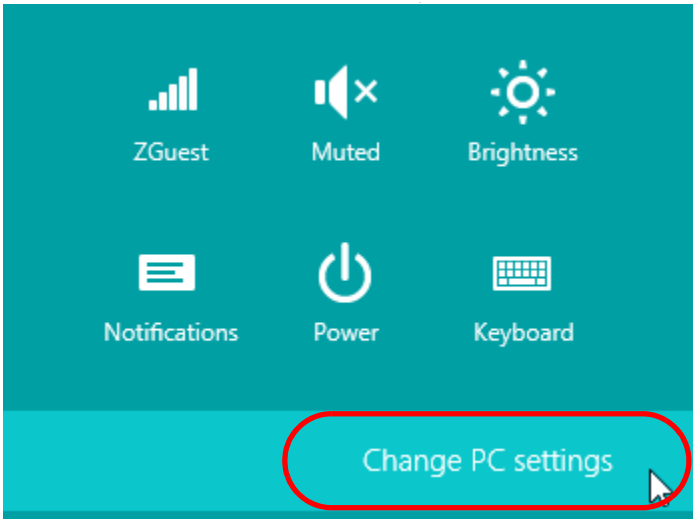
9. The **Add a Device** window alerts you when the device is added to the computer, click **Close.**

Add a device
This device has been successfully added to this computer
Windows is now checking for drivers and will install them if necessary. You may need to wait for this to finish before your device is ready to use.
To verify if this device finished installing properly, look for it in Devices and Printers.
ZEBRA-iMZ320
Close

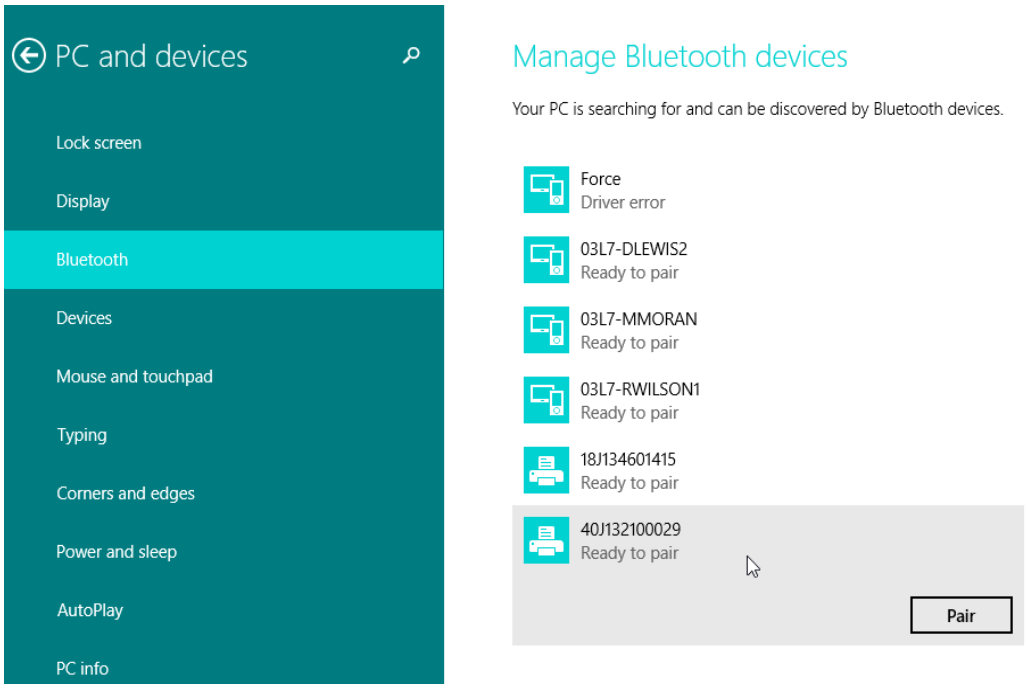
# Connecting the Printer to a Windows 8 PC

Before adding (also called pairing) a Bluetooth enabled device, make sure it's turned on and discoverable. As stated in the previous section under "Installing the Printer on a Windows 7 PC," your Windows device may need a Bluetooth adapter to connect to Bluetooth device. Check with your device manufacturer's User Manual for further information.

1. Swipe in from the right edge of the screen or move your mouse towards the right edge of the screen, select **Settings**, and then select **Change PC Settings**.



2. Select **PC and devices**, and then select **Bluetooth**. Once Windows displays the Bluetooth-enabled devices, select the device and click **Pair.**




**Important** • Windows will display the pairing code for only 10 seconds, so complete this step quickly!

3. Follow the instructions on your screen to finish pairing your device.

# Connecting Mobile Devices

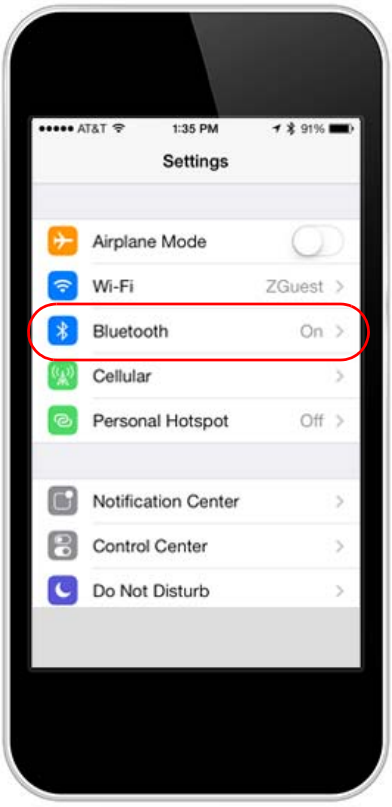
## Connecting an Apple iOS device

**Note •** See Table 2 on page 7. Currently, iMZ series, QLn series, and ZQ500 series mobile printers only support direct printing from an Apple iOS device that is connected via WIFI or Bluetooth.

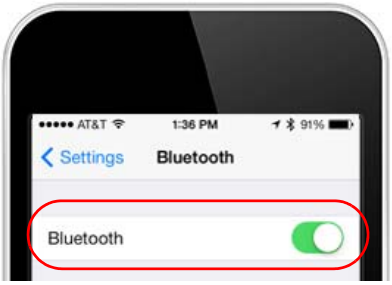
**Note •** Depending on what version iOS you are running, the icons and screens may look a little different than your screen, but the instructions are the same across all iOS versions.

1. Open the **Settings** app on your iPhone.

2. Tap **General** and then tap **Bluetooth**.




3. Make sure **Bluetooth** is turned on. In the **Devices** list, tap your Zebra printer. By default, the printer name is the serial number of the printer.




4. After the pairing, the iPhone will indicate “Connected”. You can test your connection by downloading the Zebra Utilities free app from the App Store. Zebra Utilities has files for demo purposes and will help you test and diagnose any issues with printing from your mobile device.

## Downloading Zebra Utilities from the App Store

Zebra Utilities allows you to print labels, receipts, and encode RFID tags directly from your iPhone, iPad, or iPod touch to a Bluetooth-enabled Zebra printer.

1. Tap the **App Store** icon on your iPhone, iPad, or iPod Touch. Search for Zebra Utilities app in the Search box. Install and launch the Zebra Utilities app.

2. On the main screen, tap **Files**. Pick one of the files to do a test print and tap it.

3. If you want to change the **Print Quantity**, tap in the text box and type the quantity of copies you want to print. When finished, tap **Print** in the upper right corner.

# Security

This section explains the various security features included in Zebra® Bluetooth® enabled printers.

## Contents


Minimum Security Mode. . . . . 32
Secure Simple Pairing . . . . . 33
Man-In-The-Middle Protection . . . . . 34

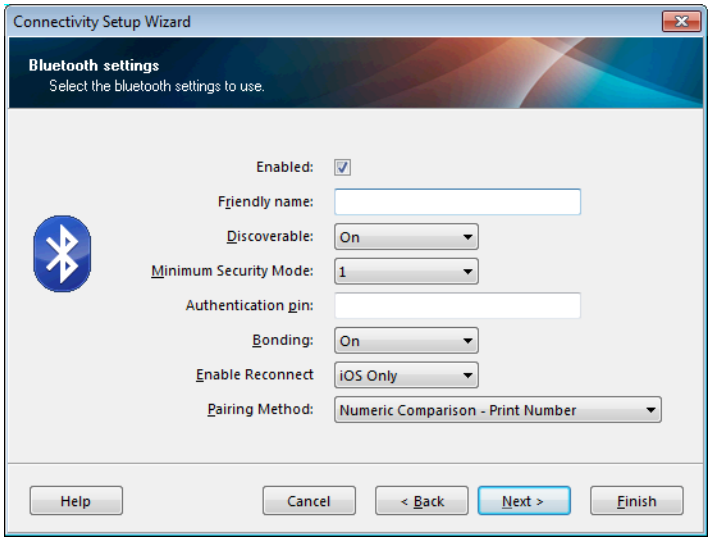
# Minimum Security Mode

**Minimum Security Mode** sets the minimum security mode at which the printer connects.The master device dictates the security mode and the printer will agree to connect at a higher security. Security Mode levels are as follows:

**Table 3 • Minimum Security Mode**

| If the master device is Bluetooth 2.0 or older: | | | | If the master device is Bluetooth 2.1 or newer: |
|---|---|---|---|---|
| | **Encryption Level** | **PIN** | **Description** | **Secure Simple Pairing** will always be used if both devices are Bluetooth 2.1 or newer. See *Secure Simple Pairing* on page 33.<br><br>The printing behavior of the iMZ is controlled by the bluetooth.non_display_numeric_comparison SGD. It prints by default ('print'), but it can also confirm automatically without printing ('noprint'), or disable Numeric Comparison altogether ('off'). |
| **Security Mode 1 (default)** | Unencrypted | NO PIN required | No data is encrypted MITM not required | |
| **Security Mode 2** | Profile-level | PIN required | All user data is encrypted MITM not required | |
| **Security Mode 3** | Link-level | PIN required MITM required | All user data and Bluetooth management commands are encrypted MITM required | |
| **Security Mode 4** | Not Applicable | Not Applicable MITM required | Printer will not connect to Bluetooth 2.0 master device MITM not required | |

1. To change the **Minimum Security Mode**, (the mode the printer connects to the master device), in Zebra Setup Utilities (ZSU), refer to the table above and click the desired level: 1, 2, 3, or 4 on the Bluetooth settings screen.




# Secure Simple Pairing

Bluetooth 2.1 introduced Secure Simple Pairing. SSP improves the security of Bluetooth by not using a static PIN and requires that all data be encrypted. SSP replaces the older Minimum Security Mode model for devices with Link-OS™ compatible printers. SSP supports two modes:

- **Numeric Comparison** displays a 6-digit number on both the master device and the printer that must be confirmed on both devices.
- **Just Works** requires no printer confirmation when in pairing mode.

The printers automatically decide whether to use **Numeric Comparison** or **Just Works** based on the features of the printer and the master device.

If both devices have a way of displaying a 6-digit number, the printer will use Numeric Comparison. If the printer does not have an LCD, (such as the iMZ Series™ mobile printers), the printer will print the 6-digit number and you confirm the number on the master device.

## Man-In-The-Middle Protection

MITM (Man-In-The-Middle) protects from a third party intercepting a connection between two devices. Just Works pairing mode does not support MITM protection. Numeric Comparison supports MITM protection. During Numeric Comparison pairing mode, both devices specify if they require MITM protection. If either device requires MITM protection, Just Works pairing mode cannot be used.

If one device requires MITM protection and the other device only supports Just Works pairing mode, this may cause the pairing to fail.

The printer does not require MITM protection in Minimum Security Mode 1 and 2. The printer does require MITM protection for Minimum Security Mode 3 and 4.

For more advanced security settings and to customize security settings with Set-Get-Do commands, refer to the Zebra Programming Guide on zebra.com/manuals.

# Troubleshooting

This section explains common troubleshooting procedures when connecting Bluetooth devices.

## Contents

Troubleshooting Steps . . . . . 36
If your Bluetooth device is not detected when you add the device: . . . . . 36

# Troubleshooting Steps

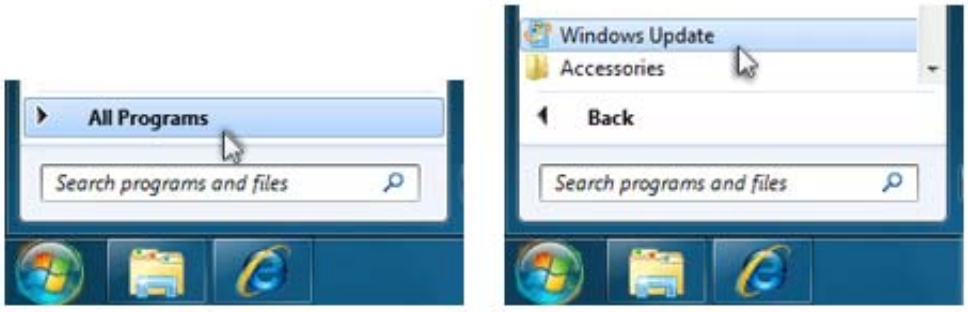
If you are experiencing Bluetooth connectivity issues, first perform the following basic troubleshooting steps that may quickly resolve your issue.

1. If your Bluetooth device uses batteries, make sure that your batteries are charged.
2. If your Bluetooth device uses a Bluetooth adapter that connects to your computer through a USB port, try connecting the adapter to another USB port on your computer.
3. If there are multiple Bluetooth devices connected to your computer, temporarily disconnect them. They can interfere with a Bluetooth adapter.
4. Verify that the Bluetooth device that you are troubleshooting is powered on and that Bluetooth is enabled. If your device has a wireless switch, make sure it's turned on. Check the User Guide that came with your device or on-line at www.zebra.com/support to locate the wireless switch on your device.

## If your Bluetooth device is not detected when you add the device:

**Important •** Make sure your Windows computer is up to date with all the latest service packs and drivers.

1. In Windows 7, use your **Start** menu to check for updates. Click the **Start** button, click **All Programs**, and then click **Windows Update**.




**Important •** If you are using Windows 8, enter Windows Update in the search box, tap or click Settings, and then tap or click Install optional updates.

2. If any important updates are available for your computer, install them. To do this, click Install updates. If you are prompted to restart your computer after all the updates are installed, restart your computer.

**Zebra Technologies Corporation**
Zebra Technologies Corporation
475 Half Day Road, Suite 500
Lincolnshire, IL 60069 USA
T: +1 847 634 6700
Toll-free +1 866 230 9494
F: +1 847 913 8766

**Zebra Technologies Europe Limited**
Dukes Meadow
Millboard Road
Bourne End
Buckinghamshire, SL8 5XF, UK
T: +44 (0)1628 556000
F: +44 (0)1628 556001

**Zebra Technologies Asia Pacific, LLC**
120 Robinson Road
#06-01 Parakou Building
Singapore 068913
T: +65 6858 0722
F: +65 6885 0838

http://www.zebra.com

**P1068791-002**